

Customer No.: 31561
Application No.: 10/065,343
Docket No.: 9527-US-PA

AMENDMENTS

In The Claims

Claim 1. (previously amended) A power adapter having a freely rotatable direct current (DC) plug connection, comprising:

a main body, including a casing that respectively encloses an adapter circuit board, a DC connector port and an alternating current (AC) connector port, the DC connector port and the AC connector port being respectively arranged on the adapter circuit board;

a DC wire, having a first terminal electrically connected to a DC plug that mates with the DC connector port according to a freely rotatable manner, wherein the DC plug is detachable from the DC connector port; and

an AC wire, having a second terminal electrically connected to the AC connector port.

Claim 2. (original) The power adapter of claim 1, wherein the casing further includes an opening at a location corresponding to that of the DC connector port on the adapter circuit board.

Claim 3. (original) The power adapter of claim 2, wherein the DC plug further comprises:

an electrical connecting part, mating with the DC connector port; and

an insulating part, partially covering the electrical connecting part, the insulating part being further provided with a slot that engages by fitting with a rim of the opening of the casing in a manner to allow a free rotation of the DC plug relative to the casing while ensuring the electrical and mechanical connection there between.

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Claim 4. (original) The power adapter of claim 3, wherein the insulating part further includes a stress-buffer structure.

Claim 5. (original) The power adapter of claim 1, wherein the casing is formed in an approximately parallelepiped shape.

Claim 6. (original) The power adapter of claim 1, wherein the casing is formed in an approximately parallelepiped shape and further includes at least a recessed cavity.

Claim 7. (original) The power adapter of claim 6, wherein the DC plug freely and rotatably connects the casing within the recessed cavity.

Claim 8. (original) The power adapter of claim 1, wherein a third terminal of the DC wire further connects an output plug.

Claim 9. (original) The power adapter of claim 1, wherein a fourth terminal of the AC wire connects a plug.

Claim 10. (previously amended) A freely rotatable electrical connection structure of an electrical device, comprising:

an electrical device, having a casing in which is arranged a direct current (DC) connector port and through which is defined an opening; and

an electrical plug, including an electrical connecting part and an insulating part, the electrical connecting part rotatably mating with the DC connector port, and the insulating part further including a slot that engages by fitting with a rim of the opening of the casing in order to

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secure the connection between the electrical plug and the DC connector port while allowing a free rotation there between;

wherein the DC plug is detachable from the DC connector port.

Claim 11. (original) The connection structure of claim 10, wherein the insulating part further includes a stress-buffer structure.

Claim 12. (newly added) A power adapter having a freely rotatable direct current (DC) plug connection, comprising:

a main body, including a casing that respectively encloses an adapter circuit board, a DC connector port and an alternating current (AC) connector port, the DC connector port and the AC connector port being respectively arranged on the adapter circuit board;

a DC wire, having a first terminal electrically connected to a DC plug that mates with the DC connector port according to a freely rotatable manner, wherein the DC plug and the DC connector port are separate, and when the DC plug is inserted in the DC connector port, a rim of an opening of the casing is engaged by fitting with a slot of the DC plug to prevent a separation of the DC plug from the DC connector port while allowing a relative rotation between the DC plug and the DC connector port; and

an AC wire, having a second terminal electrically connected to the AC connector port.

Claim 13. (newly added) The power adapter of claim 12, wherein the casing further includes an opening at a location corresponding to that of the DC connector port on the adapter circuit board.

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Claim 14. (newly added) The power adapter of claim 12, wherein the DC plug further comprises:

an electrical connecting part, mating with the DC connector port; and

an insulating part, partially covering the electrical connecting part, the insulating part being further provided with a slot that engages by fitting with a rim of the opening of the casing in a manner to allow a free rotation of the DC plug relative to the casing while ensuring the electrical and mechanical connection there between.

Claim 15. (newly added) The power adapter of claim 12, wherein the insulating part further includes a stress-buffer structure.

Claim 16. (newly added) The power adapter of claim 12, wherein the casing is formed in an approximately parallelepiped shape.

Claim 17. (newly added) The power adapter of claim 12, wherein the casing is formed in an approximately parallelepiped shape and further includes at least a recessed cavity.

Claim 18. (newly added) The power adapter of claim 17, wherein the DC plug freely and rotatably connects the casing within the recessed cavity.

Claim 19. (newly added) The power adapter of claim 12, wherein a third terminal of the DC wire further connects an output plug.

Claim 20. (newly added) The power adapter of claim 12, wherein a fourth terminal of the AC wire connects a plug.

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Claim 21. (newly added) A freely rotatable electrical connection structure of an electrical device, comprising:

an electrical device, having a casing in which is arranged a direct current (DC) connector port and through which is defined an opening; and

an electrical plug, including an electrical connecting part and an insulating part, the electrical connecting part rotatably mating with the DC connector port, and the insulating part further including a slot that engages by fitting with a rim of the opening of the casing in order to secure the connection between the electrical plug and the DC connector port while allowing a free rotation there between;

wherein the electrical plug and the DC connector port are separate, and when the electrical plug is inserted in the DC connector port, the rim of an opening of the casing is engaged by fitting with the slot of the electrical plug to prevent a separation of the electrical plug from the DC connector port while allowing a relative rotation between the electrical plug and the DC connector port.

Claim 22. (newly added) The connection structure of claim 21, wherein the insulating part further includes a stress-buffer structure.